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**Force Generation in an Immature
Contingency Theater**

**A Monograph
by
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Armor**



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ABSTRACT

FORCE GENERATION IN AN IMMATURE CONTINGENCY THEATER by Major Quentin W. Schillare, USA, 46 pages, six figures.

This monograph discusses the United States Army's force generation posture in regards to contingency operations in an immature operational theater. It seeks to determine if the Army's current force generation system is adequate to support force projection into a bare base environment.

Following an overview of force generation doctrine, the study reviews the requirements of the operational commander for forces and the capabilities of the force generation system to provide them in a meaningful way. It explores the internal and external sources of forces that the operational planner can rely on when developing the campaign plan for the theater of war or theater of operation. The paper focuses its effort by developing a scenario in which Army forces are generated to conduct a contingency operation in support of a friendly North African country threatened by a large, belligerent neighbor.

The study finds that, in general, the U.S. Army force generation system can support a contingency operation in an immature theater, but that a lack of reaction time, an inadequate sustainment infrastructure, and insufficient combat service support forces will retard the effort. It argues that the unlikely chance of a significant level of mobilization complicates contingency campaign planning. The paper concludes that long term military action against anything other than a benign threat will prove difficult.

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I. Introduction

General

The United States Army's capstone doctrinal manual, Field Manual 100-5, Operations, defines operational art as "the employment of military force to attain strategic goals in a theater of war or theater of operations...." As such it provides the link between strategy ("The art and science of employing the armed forces of a nation or alliance to secure policy objectives by the application or threat of force.") and tactics ("The art by which corps and smaller unit commanders translate potential combat power into victorious battles and engagements.").¹ Serving to form these two traditional aspects of war into a continuum, operational art brings the facets of war together as an organic whole.² Along this continuum, sustainment provides the means to execute the operational concept. Army doctrine describes operational sustainment as "those logistical and support activities required to sustain campaigns and major operations within a theater of operations."³ Campaign planning is often limited by the support structure and the resources available. Throughout history the "tyranny of logistics" has often determined the outcome of the campaign, as well as its form and substance.⁴

This paper examines one facet of the dynamic relationship between sustainment and operations: the relationship between force generation operations and the practice of operational art. It focuses on how force generation doctrine, policy and execution impacts on operational

planning. The study reinforces the proposition that sustainment holds a powerful veto over combat operations.

Force generation encompasses actions taken to supply the human resources during planning, preparation and execution of a military operation. and has two components: reinforcement and replacement. Reinforcements are the pre-planned human resources thought necessary during the campaign planning process to carry the operation to a successful conclusion. Reinforcement anticipates branches and sequels. and includes the use of scheduled follow-on forces, pre-identified contingency units from other theaters. local host nation forces. and operational reserves. Replacement operations include all actions taken to counteract the effects of attrition on the force. For the operational commander, they involve the coordinated supply and delivery of replacements to the theater of war or theater of operations in a timely manner. Planning for adequate force generation is an integral part of any plan for a campaign or major operation.

The inquiry focuses on force generation and answers this question: "How does current U.S. Army force generation doctrine affect the practice of operational art in contingency operations in an immature theater?" This question contains two concepts that must be defined to clarify it: contingency operations and immature theater. "Contingency operations are military actions requiring the rapid deployment of forces to perform military tasks in support of national policy."⁵ Normally they are directed by the National Command Authorities (NCA). of short-duration, and limited in scope, such as demonstrations, raids. or rescue missions. However. for the purposes of this paper. the

definition will be expanded to include the projection of U.S. military force for a considerable period of time. In this analysis the projected conflict is a limited war more like the Korean War than the military operations in Grenada or Panama.

An immature theater is one where there is no permanent United States military presence of any sort, and inadequate local surrogates. Hence, in the event of hostilities, an American military infrastructure must be established and built up before major combat operations can start. For example, the long-standing and well-developed theater support structure in Western Europe is mature; while the long-standing, but considerably less extensive infrastructure in the Philippines or Iceland is semi-mature. An immature theater is one in which the only American presence is provided by the State Department.

To investigate the ability of an operational level commander to conduct a contingency campaign in an immature environment under current force generation concepts, certain assumptions are made. They provide a context for this study. On the strategic level, a multi-polar world is assumed, with stability between the superpowers. The scenario posits an American contingency operation in an unnamed North African country, friendly to the United States. The adversary is a bellicose neighboring state possessing a strong military force, though with limited combat experience. The adversary does not possess nuclear weapons; and while they have chemical weapons, a standoff is likely because of a fear of an escalated response from the United States. The President of the United States declares a state of national emergency before the U.S. Army contingency force responds to a request from the threatened friendly

state. Initial deployment in theater is complete before the start of hostilities. A long war is expected. Because of the national emergency, the President has authorized a partial call up of the reserve components.* To simplify the analysis and focus on U.S. Army operational planning, this study only treats Army operations: recognizing that Navy, Marine and Air Force operations are similarly affected.

At any level of war, planning is restrained based on the number, source, type, and expected time and place of arrival of forces. These in turn depend on many things including existing force structure, mobilization architecture, and the political willingness of the nation to use military force. Further assumptions about force generation in the theater of operations are:

- 1) The commander knows what forces are on hand and allocated to the theater at the start of the campaign.
- 2) Initial fillers and reinforcements will come from within the theater.
- 3) Initial unit and individual replacements will come from the contingency force's parent unit in CONUS.
- 4) Subsequent individual replacements and small units will come from CONUS and other theaters.

These assumptions, taken as fact, contribute to the development of a force generation paradigm which determines how the theater commander practices operational art. Without a thorough understanding of how force generation restrains his operations, the operational artist may make decisions with unfortunate long term impact.

Evaluation Criteria

The sustainment imperatives described in FM 100-5, Operations, are a useful way in which to examine the impact of force generation on the

campaign plans of the operational commander.⁷ As a sustainment function, force generation will contribute to operational success if it conforms to these essential conditions. Five imperatives are discussed as they apply in the theater of war or theater of operations. Anticipation calls for "maintaining or accumulating the assets necessary to support the commander's operation at decisive times and places." It assumes a flexibility to accommodate any likely operational or tactical contingency. Integration is the incorporation of sustainment at every stage of the operation - it is applied anticipation. Continuity is the continuous supply and service of replenishment to sustain combat power. It is the bridge that links the integrated logistics whole. Responsiveness encompasses the ability to react quickly to changes in sustainment needs: the mental and physical agility to cope with requirements. Improvisation describes the ability to meet unanticipated emergencies to maintain the necessary level of support. At the operational level of war, risk can be reduced by adhering to these sustainment imperatives.

The paper develops its thesis in the following four chapters. Chapter II discusses force generation doctrine; Chapter III details the human resource needs of the operational commander; Chapter IV analyses the impact of force generation on operational planning using the sustainment imperatives as the criteria for analysis. The final chapter describes the conclusions of the analysis and the implications for today's Army.

II. The Doctrinal Foundation

Introduction

This chapter reviews several aspects of current U.S. Army force generation doctrine. It describes the sources of manpower for the Total Army (all facets of the Army - the active component, the United States Army Reserve, the Army National Guard) and the approximate numbers available at the national level to meet emergencies.

Army Mobilization and Operations Planning System

The operational commander's greatest challenge is to balance means, ways, and ends in designing an operation.⁸ Insufficient means often produce limited ends. With limited initial forces, and few reinforcements, an operation must succeed by coup de main, an unlikely event against a prepared, locally strong enemy.⁹ Because "no people equals no plan", a thorough knowledge of mobilization doctrine is essential.

The keystone force generation planning tool is the Army Mobilization and Operations Planning System (AMOPS), which performs two important functions: 1) documents the active army forces available to execute current operations plans (OPLANS); 2) presents the mobilization schedule with allocated forces and availability data for the reserve components.¹⁰ It is an operating system controlled by the Deputy Chief of Staff for Operations and Plans (DSCOPS) at Headquarters, Department of the Army. AMOPS combines the force readiness of the active force with the mobilization potential of the reserve components. Volume II

(Strategic Employment of Forces) of AMOPS. through the JSCP (Joint Strategic Capabilities Plan), apportions the Total Army force of six corps, twelve support commands, twenty eight combat divisions, 128 separate brigades/groups/commands, twelve training divisions, and other forces for wartime missions.¹¹ Because of worldwide commitments, each of the combat components of the Total Army typically is apportioned to two or more contingencies, focusing on one, but with plans to support others as required. This is a recognized weakness accepted as a necessary risk for a mobilization-based total force. It is understood that when the OPLAN is executed the number of forces furnished may be reduced.¹²

Mobilization

With 52% of the Total Army and the preponderance of the combat service support in the reserve components, mobilization is necessary for force generation in all but the most short run contingency.¹³

"Mobilization is the act of assembling and organizing national resources to support national security objectives in time of war or national emergency."¹⁴ To generate the necessary forces beyond those presently on active duty there are five levels of mobilization governed by the magnitude of the national emergency.¹⁵ In order of magnitude:

- 1) **Presidential Call-Up** - up to 200,000 selected reservists, individuals and units, for 90 days with authority for an additional 90 days for any national emergency.
- 2) **Selective Mobilization** - expansion of the active forces resulting from action by Congress and/or the President to mobilize reserve component units, the Individual Ready Reserve and other resources for a domestic emergency not the result of enemy action.

- 3) **Partial Mobilization** - expansion of the active forces to meet an external threat. Congress can authorize up to full mobilization, the President can authorize one million servicemembers for twenty four months.
- 4) **Full Mobilization** - the expansion of the armed forces to their full force structure by the mobilization of all reserve component units, individuals, and the recall of retirees. Authorized by Congress.
- 5) **Total Mobilization** - expansion of the force structure as needed to meet a national emergency. Authorized by Congress.

Regardless of the level of the call-up, mobilization entails the comprehensive participation of the President, Congress, the Department of Defense (DOD), and non-DoD governmental agencies. Together they produce the combat, combat support and combat service support forces required by the warfighting and supporting CINCs to achieve national policy objectives.¹⁶ All three Total Army components participate in this force generation process, planned and managed by the DCSOPS. The DCSOPS sets priorities and monitors the system, which is characterized by centralized control in Washington and decentralized execution at the major subordinate commands.¹⁷ Functionally, DCSOPS allocates and distributes the flag-bearing units, while the Deputy Chief of Staff for Personnel (DCSPER) is responsible for individual replacements.¹⁸

There are two parts of the reserve components, the United States Army Reserve (USAR), and the Army National Guard (ANG), each with two subelements. The first of these subelements, the Selected Reserve, consists of "active" (i.e. drilling) reservists serving in troop program units, or as pre-identified mobilization augmentees. The second, the pre-trained individual ready reserve, is made up of "inactive" (i.e. non-drilling) reservists with prior military service who are completing their military obligation, or have elected to remain in the Army Reserve

Personnel Center (ARPERCEN) data base. The ANG has 458,000 selected reservists in over 3000 units, and 10,100 individual ready reservists. The USAR has 321,700 selected reservists in more than 3300 units, and 329,500 individual reservists.¹⁹ This total of over one million persons is the human resource pool available in time of national emergency to rapidly augment the active army.

The active forces for a theater of operations are either forward deployed or designated for the theater by an OPLAN's Time Phased Force Deployment List (TPFDL). In CONUS these forces are provided by Forces Command, and trained by Training and Doctrine Command. The USAR, through its training divisions and army reserve commands, serves as the primary trainer for the mobilized force. By assuming many of the CONUS training duties from the active component, the USAR frees up active duty soldiers to serve as fillers or individual replacements. Once mobilized and called into federal service, the National Guard provides units and some individual reservists for further assignment.

The full integration of the reserve components with the active duty force is complex and will take time. Upon mobilization it will take an estimated 18-20 weeks to place most of the CONUS Replacement Centers (CRC) in operation. Those at Forts Sill, Knox and Benning will be on-line sooner, but at almost any level of mobilization above a Presidential Call-Up, they will not be enough.²⁰ By public law (10 USC 671), all non-prior service accessions will receive a minimum of twelve weeks of military training prior to deployment overseas. Because this necessary basic combat, advanced individual, and one station unit training will be conducted while the CONUS training base is expanding to

accommodate mobilization, some friction is unavoidable. Similarly, reserve component units cannot deploy overseas until they are certified as ready by the Mobilization Station commander.²¹ Although some RC units, primarily combat service support units, are available for immediate overseas deployment, most will take at least nine to twelve weeks to muster, train, and deploy.

For planning the theater commander will have only the forces on hand, and those allocated to him by the OPLAN for approximately 90 days after M-Day, the start of mobilization. If our experience in World War II is any guide, it may take much longer than three months to get mobilized units to the field. The mobilization plan of the Army Ground Forces called for 52 weeks of training before a new division was ready for deployment, but because of the turbulence caused by training units, while at the same time providing individual replacements and cadres for other divisions, the average time between activation and embarkation was 90 weeks.²² Mobilization is more difficult than it seems.

The reserve components, so much a part of the nation's overall readiness for war or national emergency, have a curiously inverse relationship when compared to total manpower requirements. As forces are needed and mobilization moves toward Total Mobilization, the importance of the reserve components diminishes. Early phases of mobilization rely heavily on RC units, and individuals in the Individual Ready Reserve, to build up the combat power necessary to achieve national policy aims. However, as the national emergency grows, and the selective service system begins operation, the national manpower pool becomes more important. If Total Mobilization is authorized, the

organized reserve components soon become a rather small percentage of the total force.

Reinforcements and Replacements

To maintain the combat capability of the operational theater the force generation system deals with four categories of replacements: units, fillers, individuals, and team/crews. Replacement units come from any component of the Total Army and provide the theater commander with trained and ready formations capable of combat missions. The units may be existing formations deployed to the theater of operations in accordance with deployment schedules, or new units formed and trained to meet the demands of the campaign. These new units may come directly from the reserve components, or be formed around cadres and composed of small units, soldiers in less critical jobs, those in schools, or pre-trained individuals.²³

Fillers are those individuals or small units required to fill vacancies in existing units to bring them to full strength on or before deployment. Fillers come from: selected USAR and ANG units; the Individual Ready Reserve; retirees; pre-trained volunteers; mobilization designees; and the active components, especially from the Trainee, Transient, Holders and Student (TTHS) account.²⁴

Individuals to replace losses come from throughout the total force. Initially, the need for replacements will be low, but demand will increase as the war continues. A cross between units and individuals, team/crew replacements are a type of collective individual replacements designed to replace whole crews or groups of soldiers accomplishing the

same task, such as tank crews. Ideally these teams and crews will be married up with their equipment as soon as possible before entering combat.

The mobilization and deployment process is seen at Figure 1. Because time is important in force generation, the longer the lead time the better the system will be able to identify, select, train and deploy the required units and individuals. Today, U.S. Army force generation doctrine stresses readiness while at the same time trying to maintain a mobilization focus. This is difficult, and the dynamic tension between these two often conflicting goals creates problems for the Army.

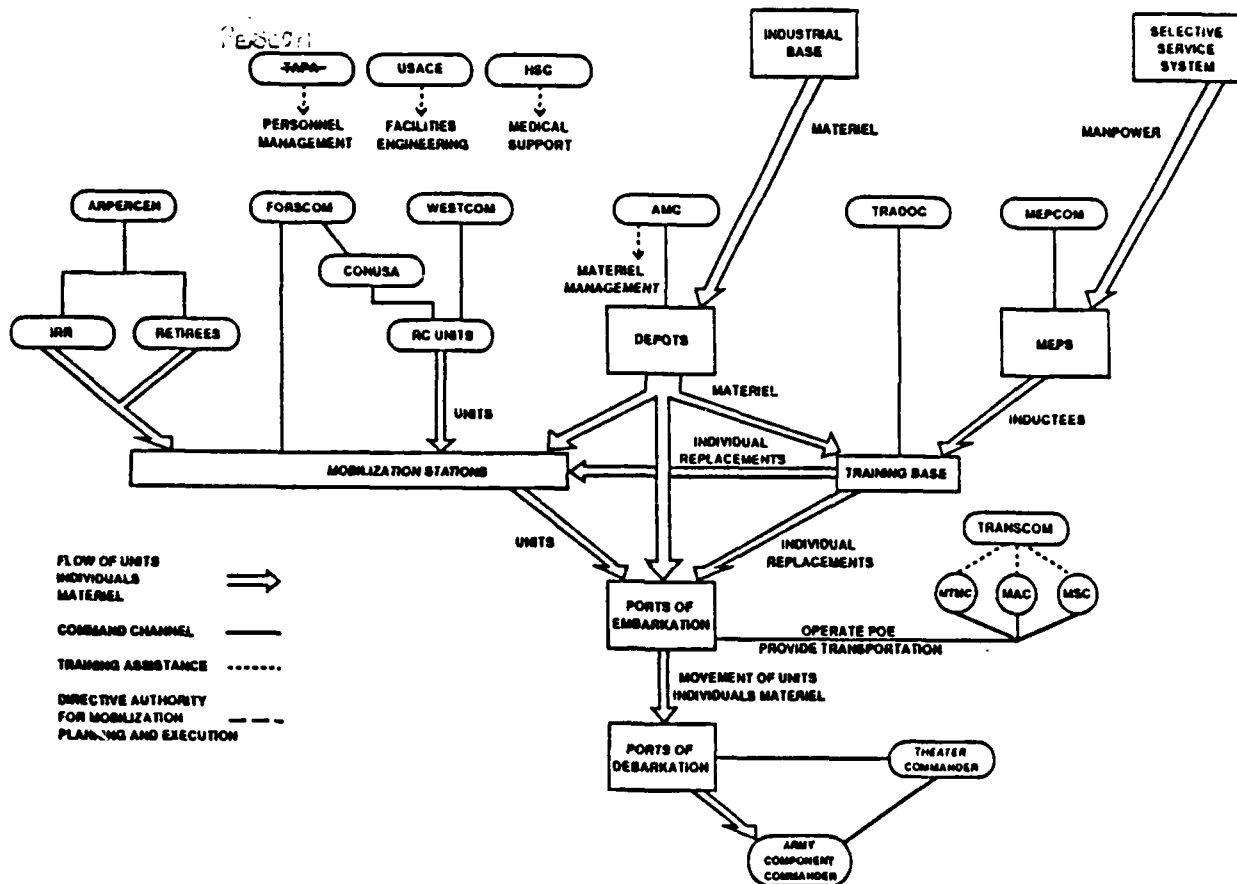
Contingency Doctrine

The contingency theater commander has a number of force generation options to meet the needs of the campaign. Some are under his direct control, while others depend on decisions taken at the national level by the President and the Congress. In order of availability and ease of use, these force readiness options include:²⁵

- 1) Increase readiness of active component units under theater control (internal force generation).
- 2) Request pre-mobilization actions to increase the readiness of earmarked reserve component units and individuals (external force generation).
- 3) Request augmentation of active component forces through mobilization (Presidential authority, external force generation).
- 4) Deploy forces initially allocated as reinforcements to the theater (internal force generation).
- 5) Request deployment of selected active component units from other theaters (external force generation).²⁶

With these options in mind, the operational commander uses the Joint Operations Planning and Execution System (JOPES) to develop OPLANS for contingencies and a Time Phased Force Deployment List (TPFDL) to

AMOPS MOBILIZATION AND DEPLOYMENT PROCESS



Source: Army Mobilization and Operations Planning System. Vol 1. System Description, Responsibilities and Procedures. (Washington, D.C.: Office of the Deputy Chief of Staff for Operations and Plans, June 1988). 2-19.

Figure 1

receive manpower from national resources.²⁷ JOPES is the interface between the strategic force generation system and force generation within the theater of operations. Through it DCSOPS manages the TPFDL units available to the warfighting CINC. The TPFDL allocates major combat and supporting units for the contingency. If required prior to execution, last minute adjustments are made to assign sufficient forces to accomplish the mission. Force availability depends on the speed of mobilization, the availability of transportation, and the readiness of the theater infrastructure to accept the forces. Assisting DCSOPS, DCSPER manages the creation of individual replacements by supervising their induction, training and movement.²⁸ Force generation for the operational commander is closely tied to strategic actions.

Based on some method of forecasting expected attrition, the commander submits requisitions through his Personnel Command (PERSCOM) to Headquarters, Department of the Army (HQDA) to get replacements. These requisitions, called Shelf Requisitions, because they are submitted prior to the start of hostilities, enable the force generation system to provide fillers before the fight, and replacements to cover projected initial losses once hostilities begin. This "push" system ensures that some replacements are programmed for the theater regardless of the competing demands placed on the worldwide force generation system by a national emergency. The forecast of fillers will be determined by current strength reports submitted by the theater personnel manager, while the projected losses will be determined by FM 101-10-1/2, Staff Officer's Field Manual: Organizational, Technical, and Logistical Data Planning Factors, or some other appropriate estimation of attrition.

The push system is designed to operate for the first 90-120 days of combat, when it will transition to a "pull" system based on actual loss experience.²⁹

The administration of force generation operations in an immature theater occurs in two phases. In the first phase, the units assigned to the theater receive support from their home base through a CONUS Force Administration Base (CFAB).³⁰ The CFAB marshals reinforcement units, replacement units, fillers and individual replacements, and sends them into theater where they are processed by replacement companies sent forward for the purpose, each of which can process 400 soldiers a day.³¹ Once all the allocated manpower assets are dispatched to the theater, the force generation burden shifts to TRADOC CRCs for individuals, and DCSOPS for units.³² In the second phase, after a logistics base has been established in the theater, a personnel organization (battalion, group, or command) performs the force generation functions. These functions, performed under the direction of the theater commander, include: forecasting personnel requirements; requisitioning replacements; distributing replacements; and coordinating transportation.³³ The theater commander is important in an immature theater contingency operation as the link between the strategic level of force generation at HQDA and assigned tactical units. Based on his priorities for the theater, reinforcements and replacements are allocated to the corps and echelons above corps units under his control.

III. Force Generation in an Immature Theater

Introduction

This chapter explores the force generation system which supports contingency operations in an immature theater. After an historical review, sources of forces are outlined and examined as they apply to the North African scenario.

Historical Review

In this century, the U.S. Army has fought with individual replacements. From World War I through the Vietnam War, the United States used conscription, and some level of mobilization, to fill the Army's ranks. In World War II the U.S. Army was composed of three parts, the Army Ground Forces, the Army Air Forces and the Army Service Forces. In regards to the Army Ground Forces, once the 89 combat divisions (built on the old regular army, the Army's reserve components, and "draftee divisions"), and non-divisional units, were established, trained and deployed for the war, the force generation system became one of individual replacements. Although some efforts were made to form individual recruits into small units to improve cohesion, the need for manpower required that individuals with basic and individual training were quickly assigned to a series of replacement centers, ever closer to the front, until they joined their unit of assignment where they were "worked in". This rather utopian individual replacement system was never entirely satisfactory, particularly in regards to the infantry which had the highest casualty rates. Combat divisions seldom left the

front lines once committed, usually only being relieved when on the verge of destruction. The problems were compounded because the senior leaders of the Army considered replacement policy unimportant and the system always lacked adequate focus.²⁴ After the war a Department of the Army Replacement Board recommended the use of unit replacements of at least platoon size, but in Korea and Vietnam the pattern established in World War II was continued. Initially, units were deployed, but once the conflict was underway an individual replacement system, supported by limited reserve component mobilization, prevailed. The trend since World War II has been to rely more on active forces in being than mobilization to meet the human resource needs of war.²⁵

World War II gives two examples of different systems. The Soviet Union developed a system where units fought until they became combat ineffective. Depleted units were then broken up and used as replacements either as individuals or as small unit building blocks for larger formations.²⁶ Individual replacements were used, but they were usually formed into new units. For their part, the German Army benefited from a long-standing military mobilization tradition, and it also used unit replacement.²⁷ Individuals were trained by the Replacement Army and sent in march companies to a Field Army unit. The group of soldiers was delivered directly to their unit of assignment, one that had a formal, long-standing relationship with the Replacement Army unit that trained them.

The implication of this short historical review for the operational commander in this scenario is that forces will be generated from active

and selected reserve component units to the extent of his TPFDL. followed by individual replacements. If history is a guide, subsequent forces will be individual replacements from the training base and return-to-duty soldiers.

Force Generation Capabilities

The organization of the theater of operations for force sustainment is crucial for success at the operational level. The operational commander must focus on several elements of organizational design in order to develop a plan which will achieve the strategic ends.

According to FM 100-5, Operations, these key elements are:²⁰

- 1) Forces available
- 2) Theater infrastructure
- 3) Host nation support
- 4) Establishment of a sustainment base
- 5) Focus on the major sustainment systems (transportation, maintenance, personnel, health and services)

A contingency operation in North Africa will stretch the abilities of the operational planner to meet these needs. Initially, the forces available are likely to be constrained, especially without an adequate infrastructure to accommodate a force build-up. The establishment of a sustainment base to handle the projected force will be the first order of business in the theater. U.S. forces have come to expect the level of host nation support found in Europe or Korea. In the absence of viable host nation support, it may take several months to build up the level of support required to support the contingency campaign plan, and will mean the movement of combat service support units into the theater ahead of combat and combat support units - the opposite of what we have

come to expect - and a fact easily overlooked in force generation planning.

Time is very important in the establishment of the force generation architecture. In any scenario there must be sufficient time to establish a sustainment infrastructure, arrange for host nation support, and focus sustainment execution to support the expected forces. Physical facilities for reception, training, and distribution must be built or made available. Sustainment systems must be created, staffed and exercised. Concurrent with the creation of a theater sustainment architecture, the CONUS mobilization base must be established. It will take time to notify, alert, train, move, and deploy reserve component units, and designated individual reservists.

Sources of Forces

A campaign plan is necessary to conduct effective operations within the theater of operations. A campaign plan is a scheme "that serves as the key employment plan of the theater of war and theater of operations."²⁹ "It provides the broad concepts of operation and sustainment and portrays the orderly deployment of forces required to achieve the military objectives, and as such is the basis for all other planning."³⁰ Although a campaign plan contains a concept of operations, assume for this scenario that the planners have a proper employment plan, and that the proper mix of forces has been requested. Assume, also, that adequate sustainment and support is provided. For the purposes of this study, the forces in question will be a contingency corps with the troop list seen at Figure 2. It is so composed to be

CONTINGENCY CORPS ORDER OF BATTLE

TYPE OF UNIT	DESIGNATION	STRENGTH	STATUS*
Echelon Above Corps	-	356	mixed
Corps HQ	18 AB Corps	331	AC
Airborne Division	82 AB Div	11,674	AC
Mechanized Division	24 IN(M)	17,304	mixed
Air Assault Division	101 AB Div (AASLT)	15,757	AC
Armored Division	1 Cav Div	17,002	mixed
Sep Inf BDE	39 Infantry BDE	1,799	RC
Sep Mech BDE	197 Mech BDE	2,329	AC
Armored Cav Regiment	107 ACR	4,535	RC
Corps Artillery	18 AB Corps Artillery	10,119	AC
Corps Aviation	18 Aviation BDE	3,691	mixed
Air Defence BDE	11 AD BDE	4,730	AC
Engineer BDE	20 Engineer BDE	7,934	mixed
MI BDE	525 MI BDE	1,609	mixed
Chemical BDE	40 Chemical BDE	1,634	RC
Signal BDE	11 Signal BDE	2,403	AC
MP BDE	43 MP BDE	1,940	RC
Psyops BN	4 Psyops BN	524	AC
Civil Affairs BN	96 CA BN	282	AC
Special Forces GP	5 SF GP	1,385	AC
COSCOM HQ	1 COSCOM	683	mixed
Ammunition GP	380 Ord GP	2,142	RC
Medical Group	213 Medical BDE	2,760	mixed
POL GP	475 Quartermaster GP	1,850	mixed
Area Support GP	46 Support GP	4,390	mixed
Area Support GP	43 Support GP	2,863	RC
Trans Motor Trans GP	143 Trans BDE	2,580	RC
Others:			
Personnel GP			
Finance GP			
EOD Control Center			
Material Management Center			
Movement Control Center			
Data Processing Unit			
		1,972	RC
Total =		126,578	69% AC 31% RC

* AC - Active Component
RC - Reserve Components
mixed - both

Source: Units from 18 AB Corps OPLAN 2-80 Positive Leap 80 (Fort Leavenworth, KS: Combined Arms Research Library, N-18546.41, March 1980), additional units from Total Army At A Glance (Arlington, VA: Association of the United States Army, 1989). Unit strengths developed from ST 100-1, Organizational and Tactical Reference Data from the Army in the Field (Fort Leavenworth, KS: Command and General Staff College, June 1987), the TRADOC common teaching scenario troop list in ST 100-3, Battle Book: Center for Army Tactics (Fort Leavenworth, KS: Command and General Staff College, April 1989), and FM 101-10-2, Extracts of Non-Divisional TOE (Washington, DC: Headquarters, Department of the Army, July 1977).

Figure 2

large enough to stretch the capabilities of the force generation system, and require the assumed mobilization. The adversary has a military of 95,000 members, with 55,000 active and 40,000 reserve forces.⁴¹ When fully deployed the TPFDL force will permit a superiority of 1.3 to 1 over the adversary.

The force list is similar to the task organization of a contingency corps field exercise conducted in 1980. It reflects the need to have a force with heavy active component representation for the sake of readiness, but with enough reserve component units for sustainment longevity. The reserve component contribution to the total force is just short of 39,000, so it can be met with the assumed Presidential 200K Call-up.⁴²

Figure 3 is a prioritized TPFDL of forces allocated for this scenario. Most of the combat units come from the active component, and are therefore expected to be at a high state of readiness. The majority of the combat support units are from the active component, but enough are RC to slow the availability of the overall combat support effort. The combat service support is predominately RC with a mobilization, training and deployment cycle that can take twelve weeks. Reserve component units, when mobilized, profit from additional periods of refresher training before being certified for overseas deployment.⁴³ In the immature theater with insufficient infrastructure, the CSS elements will be the limiting factor.

Given a need to maintain a presence in other theaters, and support the mobilization of the training base, the possible force capabilities

CONTINGENCY CORPS TIME PHASED FORCE DEPLOYMENT LIST

ORDER	TYPE UNIT	DESIGNATION	STATUS	STRENGTH
1	Corps HQ	18 AB Corps	AC	331
2	Airborne Div	82 AB Div	AC	11.674
3	COSCOM HQ	1 COSCOM	mixed	683
4	Ech. Above Corps	-	mixed	356
5	Sep Mech Bde	197 Inf Bde (M)	AC	2.329
6	SF Group	5 SF Gp (Abn)	AC	1.385
7	Air Defense Bde	11 AD Bde	AC	4.730
8	MP Bde	43 MP Bde	RC	1.940
9	Psyops Bn	4 Pysops Bn	AC	524
10	Civ. Affairs Bn	96 CA Bn	AC	282
11	Area Support Gp	46 Support Gp	mixed	4.390
12	Signal Bde	11 Signal Bde	AC	2.403
13	Misc. Support	-	RC	1.972
	Personnel GP			
	Finance GP			
	EOD Control Center			
	Material Management Center			
	Movement Control Center			
	Data Processing Unit			
14	POL Group	475 QM Gp	mixed	1.850
15	Trans Group	143 Trans Bde	RC	2.580
16	Engineer Bde	20 Eng Bde	mixed	7.934
17	MI Bde	525 MI Bde	AC	1.609
18	Chemical Bde	40 Chem Bde	RC	1.634
19	Medical Group	213 Med Bde	mixed	2.760
20	Ammo Group	380 Ord Gp	RC	2.142
21	Area Support Gp	43 Support Gp	RC	2.863
22	Air Assault Div	101 AB Div (Asslt)	AC	15.757
23	Corps Aviation	18 Avn Bde	mixed	3.691
24	Corps Artillery	18 AB Corps Arty	AC	10.119
25	ACR	107 ACR	RC	4.535
26	Mechanized Div	24 ID (M)	mixed	17.304
27	Sep Inf Bde	39 Inf Bde	RC	1.799
28	Armored Div	1 Cav Div	mixed	17.002
		Total		126.578

Note

Units are cycled into the theater in priority: headquarters units for command and control; initial combat and combat support units for ground and air security; special forces units for foreign internal defense; combat service support units to build up the sustainment architecture; combat units to complete the theater forces.

2,500 troops a day = 51 days from C-Day (13 C-141B equivalents a day)
5,000 troops a day = 26 days from C-Day (25 C-141B equivalents a day)
7,500 troops a day = 17 days from C-Day (38 C-141B equivalents a day)
10,000 troops a day = 13 days from C-Day (50 C-141B equivalents a day)

Figure 3

for this theater are as follows. Active component units from CONUS would account for 69% and RC units for 31% of the pre-hostilities allocation for the theater. It is assumed the CONUS force generation base can fill the units to TOE and transport them in a timely manner to the theater, therefore, the restraining factors center on the inadequate nature of the sustainment infrastructure of the theater. Because of the inadequate local sustainment base, TPFDL units 1 through 13 will be necessary to establish basic command, control, and logistics architectures to accept the rest of the force. These 33,000 troops (84% AC, 16% RC) and their equipment can be in theater thirteen days after C-Day (the start of deployment), granting a realistic deployment of 2500 soldiers a day.⁴⁴ Once they are established, the arrival of the rest of the units will be possible.

Because North Africa is in the EUCOM area of responsibility some advance party elements will come from Europe. Selected echelon above corps and personnel service units (about 500 strong) and selected individual replacements with critical low density MOSs will be available for the theater commander from this source.⁴⁵

Individual replacements from CONUS and from the training base will be available in limited numbers at first, and then in ever-increasing numbers as the training base, and the CRCs, gear up for the conflict. Active component soldiers freed up by reserve component backfilling as training base cadre will be available as fillers and individual replacements, as will soldiers from initial entry training. Some mobilized reserve units will be available immediately, especially

selected combat service support units. It is not difficult to visualize the mobilization process, and the attendant friction, which may cause the expected three month minimum mobilization cycle time to expand well beyond that time.

Shortfalls in initial forces, reinforcements, and replacements impact on how the operational commander accomplishes his mission. Before mobilization the theater commander is restricted to an active component force list, and will not be able to conduct an extended campaign until mobilization enables him to build up a sustainment infrastructure and stockpile materiel. Because RC units are necessary to enhance a bare base situation, mobilization must occur at least three months before C-Day to enable the plan to proceed as scheduled. In a crisis situation, it will take a degree of political and military self-control not to execute before the forces are ready. The longer the time between M-Day and D-Day, the larger the number of RC units, especially RC roundout units to AC formations, available for deployment.

Knowledge of force generation capabilities is closely linked to the requirement to conduct major operations or campaigns in a theater of war or theater of operations. The major components of force generation: readiness of active and reserve forces, the expansibility of the training base, the flexibility of the mobilization system, the responsive nature of the reinforcement base, and the potential for quick action all contribute to land force combat power creation. Yet, in the final analysis, these factors are of only minor interest to the operational commander because they are largely beyond his ability to

influence. Although they have a direct impact on his operations, he has limited control within the theater.

Now that the capabilities of the force generation system have been identified, how do they meet the needs of the operational commander? In the next chapter the force generation capabilities for the scenario are analyzed to determine the extent that they conform to the sustainment imperatives. As a means of identifying the risk inherent in the sustainment system, the imperatives focus the analysis and determine if the operational-level commander and his staff have sufficient control over force generation activities at their level to avoid a premature personnel-related culminating point.

IV. Analysis of Force Generation

Introduction

This chapter analyzes force generation in the North African contingency theater using the sustainment imperatives found in FM 100-5, Chapter 4 to determine the degree to which force generation within the theater meets the operational challenge. It includes expected branches and sequels because the system must support the operational commander through the length of the campaign to be effective.

General

Sustainment is a potentially decisive factor at the operational level of war because sustainment capabilities often limit the options of the commander in the employment of combat power.^{46 47} He is torn between

the need to build the sustainment architecture necessary to support his operational concept, and the desire to begin active combat operations against the enemy to achieve the operational objectives. To succeed, current consumption must be balanced against infrastructure buildup. Requirements must be determined and compared to capabilities; trades-offs are almost always required.⁴⁸ Central to all this is the concept of the culminating point. A culminating point is reached when a force expends so much of its strength that it ceases to hold a significant advantage over the enemy.⁴⁹ A force generation culminating point is reached when reinforcement or replacement cannot offset attrition and support continued combat operations. This tactical insufficiency can lead to an operational pause, throwing the possibility of securing theater objectives in doubt.

Within this scenario, the sustainment imperatives are addressed in the order in which they impact on the contingency planning of the operational commander.⁵⁰ Yet, each imperative does not stand alone, but is complementary to the others. A theater of operations Key Event Time Line (Figure 4) serves to focus the assumptions on mobilization, deployment and employment.

Anticipation

The first imperative is anticipation, defined as maintaining or accumulating the assets necessary to support the commander's operational concept at the decisive time and place. The strategic force generation process contributes to operational-level anticipation by supporting the theater of operations with several systems, such as JOPES and AMOPS.

THEATER OF OPERATIONS KEY EVENT TIME LINE

<u>ELAPSED TIME</u>	<u>DATES</u>	<u>REMARKS</u>
E-Day	M-Day	Mobilization begins
E+7	M+7	First units ready to deploy
E+14	M+14	Advanced parties deploy, CRC begins operation
E+90	M+90/C-Day	Security and CSS unit deployment begins
E+97	M+97/C+7	CRC fully operational (1600 replacements a day)
E+104	M+104/C+14	Sustainment base marginally operational
E+113	M+113/C+23	Sustainment base fully deployed
E+120	M+120/C+30	Sustainment base fully trained and operational, three replacement companies (400 replacements a day)
E+121	M+121/C+31	Combat units begin deployment
E+141	M+141/C+51	All TPFDL units deployed
E+147	M+147/C+57	Initial in-country orientation complete: units available for combat operations
E+150	M+150/C+60/D-Day	Active combat operations begin. Individual replacements by push system (shelf requisition)
E+151	M+151/C+61/D+1	Losses start. 870 a day (CRC releases 1600 replacements a day. three replacement companies in process 1200 a day; excess to the field of 330 a day)
E+198	M+198/C+108/D+48	Replacement excess reaches 15,000
E+270	M+270/C+150/D+90	Pull replacement system starts. based on attrition and requisitions
E+__	M+__ /C+__ /D+__	Operations continue...

Note: The flexibility of the force generation process is determined by the degree of overlap of the time lines of the three processes of which it is composed (mobilization, deployment, employment). the more overlap, the more problems in force generation.

This time line is a composite of the various assumptions on mobilization, deployment and execution underlying this paper.

Figure 4

These systems are sufficiently detailed to permit the operational commander to plan for adequate generation of forces for the campaign. In macro terms, they reduce risk by providing the forces for planning with some certainty. Yet, while helpful, they do not solve all force generation problems which interfere with the conduct of operations. Because of the fog and friction of war the element of anticipation built in to the national systems may not trickle down to the operational level.

The operational commander must be able to visualize the entire course of the campaign, or major operation. The Key Events Time Line is a means of visualization. It is an attempt to formalize anticipation by highlighting key dates in the planning, preparation and conduct of the campaign. The time line tells the commander several things: advanced parties can leave as early as M+14; deployment can begin at M+90; the CRC will be able to support the operations before it is needed; the infrastructure will be in place and prepared to support at C+30; and offensive combat operations can start on C+57. The Key Events Time Line may be wrong in specifics, but it is a means to intellectually organize the visualization process crucial to anticipation. A plan can be used and modified as required.

The plan is important because actual force generation information can be compared with the forecast throughout the campaign. When the commander's advisors know the current strength and the forecast of the forces available, decisions can be made on the accumulation of combat power for continued operations. The assumptions apparent in Figure 4

show a replacement surplus, but even if these conditions do not occur, a model will alert the commander of a problem early enough and permit remedial action.

The theater commander can anticipate specific forces for his contingency, yet, current doctrine calls for the minimum essential force necessary to accomplish the mission.⁵¹ To offset this reliance on minimum forces, operational planning must build in anticipation through plans that consider the available forces for branches and sequels, so that there is a degree of flexibility in execution. The possibility of force constraints for the plan will not only exist for the number of forces, but for the type of forces as well. Because the Total Army force structure has many one-of-a-kind units, the desired replacement force may not be available. If the force generation system can get only a limited number and type of forces to the theater in a timely manner, plans will have to recognize the risk. While this is a moot point in a relatively benign contingency, such as Grenada or Panama, in the type of struggle assumed in this paper, the theater commander will need up to 51 days after C-Day to build up the minimum sustainment infrastructure and accumulate the correct mix of forces to support his plan. And this buildup is without the unexpected start of combat operations through an enemy pre-emptive strike which will further extend the buildup. As a general rule, contingency force generation will always take more time than anticipated and be risky throughout.

Integration

By definition, integration touches all the sustainment imperatives. Having correctly anticipated the human resource needs of the contingency, the operational commander must be prepared to incorporate force generation functions into every facet of the campaign. In the realm of manpower, the key is sufficient reinforcements and replacement systems to provide the troops to continue the fight, and comprehensive strength reporting systems to tell the commander the state of his combat power. Elements of these force generation subsystems must exist at every level of the theater to provide timely and accurate information upon which to base execution decisions. Pre-deployment planning stands the best chance of proper integration because it is accomplished as a part of the long range planning that organizes the effort for the theater. Forward elements of replacement organizations must deploy early to control and monitor personnel flow. In this North African scenario, personnel units from the theater of war command level (EUCOM) will arrive early and be the principle agent of integration. In accordance with the Key Event Time Line, by M+14 force generation advance party elements are on their way to the theater to begin the integration process. By M+120/C+30 all force generation support is in place in the theater, and the CONUS support base can support it.

Integration must be comprehensive, and the more time the more thoroughly integrated can be the force generation processes. In North Africa the operational tempo will progressively increase, and as it does the integration of force generation activities will become more

difficult. Therefore, the commander and his staff must combine integration with anticipation to facilitate operations.

Continuity

In the area of operational sustainment, nothing is as important as continuity. In many respects, continuity is the result of the process of effective integration. A superior force generation system which anticipates the events of the campaign, and integrates all functions throughout the theater of operations, will fail if the supply and service of the replenishment of combat power is interrupted. The lack of a continuous supply of forces to the theater will contribute to unexpected and unnecessary operational pauses. The goal is continuous service in spite of the expected friction. In this scenario mobilization and the activation of the CONUS Replacement Centers begin early enough to be in full operation by M+97/C+7, 53 days before the expected start of combat operations.

The ability to generate forces to provide continuous support is dependent on several factors, among them are control, positioning, base development, and priorities.³² Like other resources, manpower must be controlled to ensure an adequate supply, and the level of control is a function of the level of infrastructure. With the initial bare base operation posited in this scenario, the level of control will be poor until a sustainment infrastructure is in place. Until then, control will be remotely exercised by the CONUS Force Administration Base (CFAB) with EUCOM assistance. Beginning with TPFDL Unit 13, scheduled to arrive at C+14, the basic forces necessary to ensure some measure of

continuity will be in place. This will occur when only 28% of the TPFDL forces are in the theater. A goal of the operational commander should be to balance his forces so that they can be self-sustaining as early as possible in the contingency. Upon the arrival of TPFDL Unit 21 the necessary CSS units will be in theater. Granting a 2500 troop a day arrival rate, this last support unit will arrive on C+23. Assuming seven days to settle in and become effective, the infrastructure will be ready to serve significant combat forces on C+30. Given priority, one month after the start of deployment, the contingency theater will have a sustainment base prepared to accept the anticipated forces required by the OPLAN, and any further forces required to resource sequels.

At Figure 5 is a loss estimate for combat operations which establishes a need for 870 replacements a day. With the programmed forces the theater can support continuity of effort in training, assignment, and distribution. The forces possess enough command and control nodes to flexibly support the main effort, provide for reconstitution, and control replacement of severe combat losses. These actions are enhanced by the forecasted surplus of 330 replacements a day, which will provide a cushion for the operational commander to meet the need for forces and permit branches and sequels.

Responsiveness

Responsiveness is the ability to react quickly to changes in sustainment needs. It assumes the mastery of the moment, both physically and mentally. The ability of the theater force generation system to meet the challenges of North Africa may depend on some

CONTINGENCY CORPS LOSS ESTIMATE

Strength Recapitulation

	Authorized	Assigned*
Air Assault Division	15,757	14,969
Airborne Division	11,674	11,090
Armored Division	17,002	16,152
Mechanized Division	17,304	16,439
Separate Infantry Bde	2,329	2,213
Separate Mechanized Bde	1,799	1,709
Corps Nondivisional Units	<u>60,713</u>	<u>57,677</u>
Totals	126,578	120,249

* Assumes a 95% fill rate at the start of combat operations.

Replacements Needed On D-Day

Authorized (126,578) - Assigned (120,249) = 6,329

Estimated Losses in Fifteen Days of Combat

Infantry Units (Air Assault, Airborne, Separate Infantry: 29,230)

Battle Losses (.5 x 10% x 29,230) = 1,462
 Nonbattle losses (.5 x 8% x 29,230) = 1,169

Armored/Mechanized Units (Armored, Mechanized, Separate Mechanized: 36,635)

Battle Losses (.5 x 8% x 36,635) = 1,465
 Nonbattle Losses (.5 x 7% x 36,635) = 1,282

Corps Nondivisional Units (other corps units: 60,713)

Battle Losses (.5 x 1.25% x 60,713) = 380
 Nonbattle Losses (.5 x 3% x 60,713) = 911

Total 6,669

Total Replacements Needed on D+14

Fillers for 100% Fill = 6,329
 Unit Losses in 15 day of combat = 6,669

Total 12,998

Source: U.S. Army. FM 101-10-1/2, Staff Officer's Field Manual: Organizational, Technical, and Logistical Data Planning Factors (Volume 2), (Washington, D.C.: Headquarters, Department of the Army, October 1987), 4-10. The formulas and loss factors found in Chapter 4, Personnel Service Support, for attrition are used and assumed to be valid for the purposes of this illustration.

Figure 5

modification in the plan. With force generation the changes will often occur because of the inability to replace soldiers in critical low density military occupational specialties (MOS). As the individual replacement system becomes operational on D-Day it will be geared to the high density combat and combat support MOSs that will take the most casualties.⁵³ At the operational level in the North African theater, the commander can closely manage, by critical MOS, to forecast and respond to potential and actual force shortages. Yet, he has little flexibility to cause adjustments in the training base. Unless changed early, the theater will be on a "push" replacement system until about D+90. If early attrition indicates a need for replacements of a specific MOS, there may be a lag of from twelve to sixteen weeks while the soldiers are produced by TRADOC. Any delay in notification will cause a similar delay in their arrival in the theater.

Combat power, and the ability to support the application of combat power in the case of CS and CSS units, is the result of a number of intangibles, including the state of training, motivation, and the level of leadership of the organization.⁵⁴ The force generation process in the theater must be able to assess these factors and take any required remedial action. Whether assessed through direct observation by the commander or reported on readiness documents, the state of these intangibles in the immature theater must be responsive to the remediation of in-country training provided to all units and individuals as they enter the theater. Such things as MOS refresher training, a short course in battlefield survival skill for the type of fighting to be expected in the region, and a country orientation will be necessary.

These training activities are dependent on their being recognized as necessary and being planned for by the theater commander. Here again, time is the key. A one week program of instruction, established and run by the theater personnel command at the port of debarkation, followed by unit-level training will pay dividends in increased effectiveness.⁵²

Improvisation

Improvisation is the ability of the sustainment system to meet unanticipated emergencies to maintain the required level of support. In a sense improvisation will be necessary because of the inadequate application of the other imperatives. The fog and friction of war will lead to improvisation. Paradoxically, improvisation can be planned to expand the realm of the possible and enhance the application of the other sustainment imperatives.⁵⁴ However, planned improvisation requires long lead time and the type of visualization implicit in the Key Event Time Line. More than any of the other sustainment imperatives, improvisation at the operational level must be controlled, or it will lead to dysfunctional organizational behavior because of a need to get the scarce human resources available. A senior operational commander, such as the COSCOM commanding general, is required as the honest broker to manage attempts at planned improvisation and prevent the system from becoming chaotic as needs arise and resources decrease.

Replacement operations represent the biggest challenge in the area of improvisation. Regardless of the amount of planning, casualties, diversion of replacements, illness and accidents will cause the command's personnel attrition estimates to be wrong. Therefore, the

theater commander will have several replacement options to help him improvise the combat power needed to accomplish the mission. Among the options are whole unit replacement, incremental replacement, reduced strength operations, and reconstitution.⁵⁷

Prior to the exhaustion of the forces available in CONUS, unit replacement will be the preferred method of force generation, followed by incremental replacement as small units augment attrited forward deployed units. If sustained deployment does not occur quickly, reduce strength operations, followed by reconstitution, will be the only choices to support the campaign. As the theater commander responds to various tactical engagements and battles, he will be forced to prioritize the use of forces. How he does this will determine which part of the force has adequate forces and which does not. Given the historical reliance on individual replacements in the American Army, it is probable that as losses mount and units approach the level of ineffectiveness (around 50%), the theater commander will be tempted to use his human resources from all sources as individual replacements. Any lag in out-of-theater force generation will cause the theater commander to put a premium on reduced strength operations and reconstitution in order to avoid tactical culminating points and an operational pause.

The expected losses at D+14, fifteen days after the start of hostilities, are seen at Figure 5. By D+14 the battle and nonbattle losses will approach 10% of the total force. The commander will need replacements of about 1% per day of combat to maintain combat

effectiveness, or about 870 replacements per day. In practical terms he needs four C-141Bs per day just for replacements, and at least two replacement companies to process them. This force generation burden will require nine replacement companies in the CONUS Replacement Centers. Build up of additional forces or excess losses will increase the burden. For example, a decrement of 200 replacements a day (670 instead of 870), given the same loss estimate will total 11,600 men, or the size of the TPFDL airborne division in 58 days of combat. Other numbers give similar losses in combat power.

In North Africa the theater commander's ability to improvise through reconstitution will be limited. Reconstitution is probable for up to brigade-size units only. Since it is estimated that only a headquarters two echelons up the chain of command will have the resources to effectively reconstitute a unit, the theater will be limited to brigade-size formations - and probably much lower.^{3a} As he improvises to keep tactical units in the fight in an austere theater, the operational-level commander will have few resources to reconstitute large units. Therefore, reconstitution will most likely only be to the level of mission requirements. Like the Germans in World War II, the reconstituted unit will actually be a battle group (kampf gruppe), an ad hoc formation constituted for a single mission only. Pre-planned operational improvisation is possible, but only from among a narrowly defined menu of options. These alternatives must be identified and resourced before the operation begins. Anything less will resemble the usual tactical improvisation expected of military leaders.

In the final chapter of this paper the conclusions developed by the analysis are discussed, as are the implications for the operational commander.

V. Conclusions and Implications

Introduction

This final chapter summarizes the conclusions and explores the operational implications of force generation for contingency operations for the United States Army in the last decade of the century. Included as Figure 6 is a one page memo to the commander summarizing the force generation issues on mobilization day.

Conclusions

Based on the scenario, the conclusion of this paper is that the force generation system can support a contingency in an immature environment. There are several supporting conclusions.

First, the strategic force generation systems (JOPES, AMOPS, replacement operations) are in place and designed to support the operational level of war. The Commander, 18 Airborne Corps, can develop necessary liaison, through the commander of the theater of war (EUCOM), to support the theater of operation.

Second, Force buildup must occur before effective operations against the enemy. At any location in North Africa, a deployed force will operate in an austere theater. This will require either a long

build up of forces and sustainment within the theater, or an equally-long build up at a forward staging base before C-Day. A thoroughly planned, methodical program of force buildup, controlled by the theater of operations and supervised by the EUCOM commander will be the key to operations in an immature North African theater.

Third, CSS units will precede CS and combat units into the theater. In North Africa force generation will be closely tied to base development and the level of sustainment infrastructure in the objective area. In this campaign it will take in excess of 23 days after the start of deployment to get sufficient CSS units into theater before the start of active operations against the enemy. Base development, force buildup, and infrastructure development are much more dependent on combat service support units than combat units. Barring the need for a forced entry, a TPFDL for a North African operation must lead with CSS units, and only enough combat and combat support units to provide security for the buildup.

Fourth, Long term operations in an austere location will entail the use of reserve component units. Many of the Army's CSS assets are in the reserve components. The use of reserve component units in this scenario required a reserve call-up, especially of those roundout CSS units that contribute to the Army's support commands. Although this scenario assumed M-Day (mobilization day) far enough in advance of C-Day or D-Day to adequately support the theater of operations, this may not always be the case.

Fifth, Planned improvisation is necessary. With both mobilization and base development so time-dependent, it is clear that in the realm of force generation branches and sequels must be investigated and resourced. Long range concept planning by EUCOM, and development of operations plans by 18 Airborne Corps will enhance the ability to respond quickly to changes in assumptions. Fortunately, the need for improvisation can be forecasted, with contingency plans developed to meet expected force generation shortfalls. Personnel annexes and appendices dealing with reinforcement, replacement, and personnel support architectures, and other force generation issues are required.

Implications

The conclusions related to North African operations have several implications for the operational level commander as he employs military force to attain strategic goals in that theater of operations.

First, The level of planning for an immature theater may exceed that for a deployment to a developed-base area. Plans for a theater with an established sustainment infrastructure will often be well-developed and frequently-exercised, while in an austere environment the plans will necessarily develop the concept first, and then produce the details to support those concepts. Operational force generation planning must use the strategic systems, such as the JOPES, to develop the concept plan upon which all future planning is based. The campaign plan must include a personnel annex that accounts for a logical buildup of initial forces, follow-on forces and replacements. Force generation specialists and personnel units must be early arrivals in the theater to

support this effort. For the TPFDL used in this scenario. 75% of the first 56,000 troops, and 90% of the first 21 units, are combat service support or combat support contributing directly to infrastructure establishment. It is only after the infrastructure is established that the rest of the combat support and combat forces can be brought into the theater and prepared for active operations against the enemy. The detailed planning for the establishment of a force generation infrastructure is a necessary condition for success in the North African theater of operations. The G-4 (or J-4) Planner may be more important than the G-3 Planner.

Second. Reserve component mobilization will impact the operational commander. Closely related to infrastructure build up is reserve component mobilization. Although care was taken to include as many active component units in the TPFDL as possible, the force list still gets 31% of its soldiers from the reserve components. Use of that level of reserve component units and individuals implies a level of mobilization. Because use of reserve components leads to mobilization, it is perhaps the most profound implication facing the operational level commander. The decision to mobilize is strategic, but the effect is often operational. In any war short of one supported by full or total mobilization, the commander must be aware of the implications when a percentage of his force comes from the reserve components. RC units will need refresher training, and may be less capable than similar active component forces.

Third, Operational planning must consider the expected force generation capabilities for the theater. Overambitious plans that exceed the capabilities of the force generation system will not succeed. In order to avoid a culminating point caused by lack of forces, the range of forces must be compared to what they are expected to do. Once TPFDL forces are deployed, the planning cycle must continue to identify post TPFDL follow-on forces required by changes in the operational situation. The CSS forces on the TPFDL compose 17% of forces deployed. They can support several more combat divisions and other combat support assets before they require augmentation. Tradeoffs between the calculated force requirements and the forces available may be required. In North Africa the prudent operational commander will probably maintain an operational defensive until the force is fully deployed, while maintaining the tactical offensive with subordinate units. Operational plans must reflect this situation.

Lastly, Time is the ally of force generation. The implications of time run throughout this paper. Time is explicit in the establishment of a sustainment infrastructure, and to call-up and prepare the reserve components for war, and implicit in the need to develop adequate plans, war game them and develop adequate estimates of the situation prior to the start of active operations. Based on time for mobilization and preparation of forces, from C-Day until the CSS base is marginally operational took 15 days, approximately 30% of the time available to deploy the entire force, and 24 days, or 47%, of the total deployment time to become fully operational. Time is especially important in a contingency operation, where the crisis that precipitated the

contingency will often exert a pull toward a rapid military solution. The operational commander must resist the pressure to engage in operations before the force is ready. Correct prioritization of forces into a contingency will contribute to success.

This paper discussed the ways the U.S. Army generates forces to attain a strategic goal in an operational North African contingency theater. While determining that the Army's force generation system will work in such a situation, it suggests that without sufficient lead time and adequate planning, force generation will be one of the first systems to break down and lead to an operational pause. If the operational commander does not plan for adequate force generation his campaign will not succeed.

Memo

To: Theater Commander
From: G-3 Plans

Subject: Force Generation Issues for North African Contingency Operations.

1. The President has declared a State of National Emergency, mobilization has been ordered (Today is M-Day).
2. The strategic force generation systems can support our efforts (Enclosure 1 is a Key Event Time Line).
 - a. RC units on the TPFDL will mobilize and be ready to deploy by M+90.
 - b. CRCs will be fully operational by M+97, output of 1200 replacements a day.
3. The theater is immature, a sustainment base must be established.
 - a. Advanced Party will deploy by M+7.
 - b. CSS units will precede most combat units.
4. Deployment can begin by M+90 (M+90 = C-Day).
5. Assuming 2500 troops deployed per day a sustainment base will be marginally established by C+14, fully operational by C+30.
6. Combat units can deploy on C+31: defensive combat operations only until C+50.
7. TPFDL deployment will be complete on C+51 (M+141). Deployment slowed by 2 days for every 100 troops below 2500 a day average.
8. Full offensive combat operations can begin on C+57 (M+147).
9. Current loss estimate and replacement forecast: losses = 870 a day. anticipated replacements = 1200 a day, surplus = 330 a day.
10. Three replacement companies required to process replacements (400 per day per company).
11. Any combination of lower replacements or higher attrition will reduce forces: a net loss of 200 per day will equal a division-equivalent by D+58.
12. Any change in the relative position of the three time lines (mobilization, deployment, employment) will change these calculations.

Enclosure 1 (Key Events Time Line) to Force Generation Issues for North African Contingency Operations memo

THEATER OF OPERATIONS KEY EVENT TIME LINE

<u>ELAPSED TIME</u>	<u>DATES</u>	<u>REMARKS</u>
E-Day	M-Day	Mobilization begins
E+7	M+7	First units ready to deploy
E+14	M+14	Advanced parties deploy. CRC begins operation
E+90	M+90/C-Day	Security and CSS unit deployment begins
E+97	M+97/C+7	CRC fully operational (1600 replacements a day)
E+104	M+104/C+14	Sustainment base marginally operational
E+113	M+113/C+23	Sustainment base fully deployed
E+120	M+120/C+30	Sustainment base fully trained and operational. three replacement companies (400 replacements a day)
E+121	M+121/C+31	Combat units begin deployment
E+141	M+141/C+51	All TPFDL units deployed
E+147	M+147/C+57	Initial in-country orientation complete; units available for combat operations
E+150	M+150/C+60/D-Day	Active combat operations begin. individual replacements by push system (shelf requisition)
E+151	M+151/C+61/D+1	Losses start. 870 a day (CRC releases 1600 replacements a day. three replacement companies in process 1200 a day; excess to the field of 330 a day)
E+198	M+198/C+108/D+48	Replacement excess reaches 15,000
E+270	M+270/C+150/D+90	Full replacement system starts. based on attrition and requisitions
E+___	M+___/C+___/D+___	Operations continue...

Note: The flexibility of the force generation process is determined by the degree of overlap of the time lines of the three processes of which it is composed (mobilization, deployment, employment). the more overlap, the more problems in force generation.

Figure 6-1

ENDNOTES

¹ U.S. Army, Field Manual 100-5, Operations, (Washington, D.C.: Headquarters, Department of the Army, May 1986), 9,10.

² Dr. Brian Holden Reid, Lecture on J.F.C. Fuller, (Fort Leavenworth, KS: U.S. Army Command and General Staff College, School of Advanced Military Studies), 6 February 1990. Dr. Holden Reid points out that Fuller made one of the early efforts to see operational art (what he called grand tactics) as an important part of the understanding of the nature of war.

³ FM 100-5, Operations, 65.

⁴ In this century, force generation policy has often had a limiting effect on American military operations. In World War I the U.S. Army sent 42 oversized divisions to France, but (according to James A. Huston, The Sinews of War: Army Logistics 1775-1953) because of attrition and the need to meet operational commitments, fourteen divisions were broken up for replacements and service troops. Likewise, in World War II the strategic decision to field only 89 divisions for all theaters forced operational planners in the European Theater of Operations (ETO) to adopt campaign plans recognizing a shortage of manpower, especially infantry. Force generation provides an pertinent example of how the strategic means provided to an operational level commander effect the ways in which he conducts warfighting activities to achieve the strategic goals expected by the NCA.

⁵ FM 100-5, Operations, 169.

⁶ For the purposes of this study the reader is asked to accept a partial mobilization, although such a course of action is politically unlikely. The United States population has shown a willingness to accept only total mobilization, such as in the two world wars. Partial mobilization here is assumed to test the force generation system, not to cause political debate.

⁷ FM 100-5, Operations, 62-63. Some of the definitions must be inferred.

⁸ Stephen P. Peterson, Operational Sustainment: The Impact of Critical Decisions Upon Operational Design, (Fort Leavenworth, KS: U.S. Army Command and General Staff College, School of Advanced Military Studies, May 1989), 7.

⁹ Military history abounds with examples where the expectations of the supposedly stronger force were not fulfilled: the defeat of the Union Army at First Bull Run in 1861 is an offensive example; the disintegration of the French in 1940 a defensive example.

¹⁰ U.S. Army, FM 701-58, Planning Logistics Support for Military Operations, (Washington, D.C.: Headquarters, Department of the Army, May 1987). 4-16.

¹¹ The Total Army is a complex organization which changes frequently. A current recap includes (from Association of the United States Army, The Total Army at a Glance, Arlington, VA: AUSA, no date [1989?]):

- 5 Continental United States Armies (mixed)
- 4 corps HQ (100% active duty)
- 2 corps HQ (with reserve component roundout)
- 12 support commands (100% reserve component roundout)
- 9 combat divisions (100% active duty)
- 9 combat divisions (with reserve component roundout)
- 10 combat divisions (100% reserve component)
- 12 separate infantry brigades (2 active, 1 USAR, 9 ANG)
- 6 separate mechanized infantry brigades (1 AC, 1 USAR, 4 ANG)
- 4 separate armored brigades (2 AC, 2 ANG)
- 7 armored cavalry regiments (3 AC, 4 ANG)
- 30 field artillery brigades (9 AC, 3 USAR, 18 ANG)
- 8 air defense brigades (6 AC, 2 ANG)
- 9 special operations forces groups/regiments (5 AC, 2 USAR, 2 ANG)
- 8 separate aviation brigades (5 AC [4 with RC components], 3 ANG [2 with AC and USAR components])
- 10 engineer commands/brigades (4 AC, 2 USAR, 4 ANG)
- 9 signal commands/brigades (4 AC, 1 USAR, 4 ANG)
- 4 transportation commands/groups/brigades (1 AC, 2 USAR, 1 ANG)
- 5 civil affairs commands/brigades (all USAR)
- 9 military police commands/brigades (2 AC, 3 USAR, 4 ANG)
- 7 medical commands/groups/brigades (1 AC, 3 USAR, 3 ANG)
- 12 training divisions (all USAR)
- 1 training brigade (USAR)
- 20 army reserve commands (all USAR)
- 2 maneuver area commands (both USAR)
- 54 State Area Commands

¹² U.S. Department of Defense, The Joint Staff Officer's Guide 1988, (Norfolk, VA: National Defense University, Armed Forces Staff College, July 1988), 138.

¹³ U.S. Department of the Army, Training and Organization of the U.S. Army Reserve Components, (Fort Monroe, VA: U.S. Army Training Board, April 1988), 1.

¹⁴ Army Mobilization and Operations Planning System (AMOPS), vol. 1, System Description, (Washington, D.C.: Headquarters of the Army, Office of the Deputy Chief of Staff for Operations and Plans, June 1988), 2-1.

¹⁵ Ibid., 2-1. Because the Presidential 200,000 Call-Up does not require a declaration of national emergency or a declaration of war it is not technically mobilization. However, since it will impact on the

activation of reservists. It will be considered a phase of mobilization for this paper.

¹⁶ In accordance with the current Department of Defense organization, warfighting is the job of the unified commanders-in-chief (CINCs) responsible for commands based on geographic areas. These commands are Pacific Command, Atlantic Command, Central Command, European Command, and Southern Command. They are supported by CINCs who provide general assistance: Special Operations Command, Transportation Command, and Space Command. The unified commands are assisted by two specified commands (commands composed of just one service), U.S. Forces Command, and Strategic Air Command.

¹⁷ U.S. Army, TRADOC Pam 525-25, Military Operations: U.S. Army Operations Concept for Wartime Personnel Replacement Operations, (Fort Monroe, VA: Headquarters, U.S. Army Training and Doctrine Command, February 1983), 3.

¹⁸ Ibid., 5.

¹⁹ U.S. Army, The Army Budget - Amended Fiscal Year 1990-91, (Washington, D.C.: Headquarters, Department of the Army, Office of the Director of the Army Budget, Office of the Assistant Secretary of the Army for Financial Management, May 1989), 14. This is a 1990 estimate, the exact number of troop units and reservists in any category is constantly changing.

²⁰ U.S. Army, FM 12-16, Replacement Operations, (Washington, D.C.: Headquarters, Department of the Army, July 1984), 2-4, 2-5.

²¹ In time of national emergency public law can be changed. During the Korean War basic combat training was cut from fourteen to six weeks in the Spring of 1951 (Strauss, Regimental System, 84).

²² John S. Brown, Winning Teams: Correlates of Success in American World War II Infantry Divisions, (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1985), 10-11.

²³ TRADOC Pam 525-25, Wartime Personnel Replacement Operations, 5.

²⁴ Ibid., 7. Especially the RT-12 Program, those prior service members with less than twelve months since their release from active duty.

²⁵ Army Mobilization and Operations Planning System (AMOPS), vol 1. System Description, 2-16.

²⁶ Other actions involving Partial, Full and Total mobilization are strategic and are beyond the scope of the operational commander to initiate.

²⁷ Army Mobilization and Operations Planning System (AMOPS), vol 1. 2-4.

²⁸ Thomas J. Strauss, The United States Army's Regimental System - A Framework for Wartime Personnel Replacement, (Fort Leavenworth. KS: U.S. Army Command and General Staff College. May 1984). 98.

²⁹ FM 12-6. Personnel Doctrine, 22, 101.

³⁰ Ibid., 14.

³¹ Ibid., 94.

³² TRADOC Pam 525-25. Wartime Personnel Replacement, 3. IAW FM 12-6 each CRC can release 100 replacements per day for deployment.

³³ FM 12-6. Personnel Doctrine, 101.

³⁴ Jo B. Rusin, Command and Control of Replacement Personnel. (Fort Leavenworth. KS: U.S. Army Command and General Staff College. May 1982). 9.

³⁵ Strauss. Regimental System, 83. For the Korean War 600 reserve component units, including five National Guard Divisions, were mobilized (two went to Korea, two to Europe and one stayed in CONUS). During the Vietnam War 76 units with 20,000 soldiers were called to the colors, but most did not go to the war zone.

³⁶ Ibid., 50.

³⁷ Victor W. Madej, German Army Order of Battle 1939-1945. 2 vols.. (Allentown, PA: Game Marketing Company, 1981), 1:49.

³⁸ FM 100-5. Operations, 63.

³⁹ U.S. Army War College, Campaign Planning. (Carlisle Barracks. PA: Strategic Studies Institute, U.S. Army War College. January 1988). 7.

⁴⁰ Ibid., 8.

⁴¹ The Military Balance 1989-1990 (London: Brassey's. The International Institute for Strategic Studies, Autumn 1989). 107.

⁴² According to the Director of the Joint Staff, JCS. in an address to the School of Advanced Military Studies on 9 April 1990. the 200K Call Up includes about 32,000 persons to support the mobilization system alone. Additional draws on the 200,000 to support the other services would further reduce available Army forces in that number.

⁴³ According to the After Action Report. Mobilization of Reserve Forces 1968 (Washington, D.C.: Headquarters, Department of the Army, no date). this call-up of 76 units with 20,00 soldiers was not well executed. Among the problems identified: poor readiness data on equipment and personnel, confusion during the notification process. insufficient funds programmed to support the effort, inability to use

the Individual Ready Reserve because of the lack of a declared national emergency, soldiers not MOS qualified, lack of adequate post mobilization training.

⁴⁴ Most equipment will move by sea with troops, and selected equipment, by air. The C-5A can lift a maximum of 121 stons of cargo, the C-141B can move 200 troops (or 45 stons of cargo) and the C-130 can move 91 troops (or 17.5 stons of cargo).

⁴⁵ Use of OCONUS forces may be politically difficult. In the past, Europeans have protested when U.S. forces in NATO are used in out-of-theater contingencies, especially those with potential economic consequences for Europeans such as the 1986 attack on Libya.

⁴⁶ FM 100-5, Operations, 74.

⁴⁷ U.S. Army, FM 100-6, Large Unit Operations. Coordinating Draft (Washington, D.C.: Headquarters, Department of the Army, September 1987). 3-18

⁴⁸ Ibid.. 3-19.

⁴⁹ Carl von Clausewitz. On War, Michael Howard and Peter Paret editors and translators, (Princeton, N.J.: Princeton University Press, 1976). 528.

⁵⁰ FM 100-5. Operations, 62, 63.

⁵¹ Ibid, 9. Force generation is only assumed in FM 100-5. The manual does not mention mobilization, the use of the reserve components, or the fact that the "Total Army" is less than totally ready.

⁵² FM 100-6. Large Unit Operations, 4-10.

⁵³ U.S. Army, FM 101-1-1/2, Staff Officers' Field Manual: Organizational, Technical, and Logistics Data Planning Factors (Vol 2), (Washington, D.C.: Headquarters, Department of the Army, October 1987). 4-11.

⁵⁴ Training and Organization of the U.S. Army Reserve Components, 1. Ragardless of their indicated level of readiness on the RC units's quarterly Unit Status Report, and their willingness to be considered as a part of a contingency, a military organization which trains 41 days a years (about 20% of the time available to the typical AC unit) cannot be expected to perform to the level of an active unit.

⁵⁵ Such training was given to soldiers assigned as individual replacements to units during the Vietnam War. The author participated in a program of instruction in the 199th Infantry Brigade that included: a country orientation, jungle survival skills, infantry weapons qualification, leadership, basic infantry tactics, drownproofing, and other activities, all taught by a combat-experienced cadre.

³⁶ Randolph B. Wehner, Sustainment Improvisation - Expanding the Realm of the Possible, (Fort Leavenworth, KS: U.S. Army Command and General Staff College, School of Advanced Military Studies, May 1986), 5.

³⁷ Strauss, Regimental System, 129.

³⁸ FM 12-6, Personnel Doctrine, and FM 100-5, Operations, and other doctrinal manuals are not clear on the size unit to be reconstituted, although the scope of the effort would seem to limit it to brigade-size and lower.

BIBLIOGRAPHY

Books and Documents:

- Belanger, Van-George R. Operational Sustainment -- Means, Ways and Ends Governing Joint and Combined Operations. Leavenworth, KS: U.S. Command and General Staff College. School of Advance Military Studies, May 1989.
- Endress, Charles A. Mobilization. Historical Bibliography #7. Leavenworth, KS: U.S. Army Command and General Staff College, no date.
- Idlart, Philip L. Sustain in a Secondary Theater: An Analysis of the Effect of Transportation on Campaign Execution in North Africa, 1941-42, and its Relevance to Southwest Asia. Leavenworth, KS: U.S. Command and General Staff College. School of Advance Military Studies, May 1987.
- Knightly, William S. Campaigning in the Secondary Theater: Challenges for the Operational Commander. Leavenworth, KS: U.S. Command and General Staff College, School of Advance Military Studies, May 1987.
- Nichols, Howard V. Operational Level Logistics: An Examination of U.S. Army Logistical Doctrine for the Operational Level of War. Leavenworth, KS: U.S. Command and General Staff College, School of Advance Military Studies, May 1986.
- Peck, John A. Theater Replacement Operations. Carlisle Barracks, PA: U.S. Army War College, April 1985.
- Peterson, Stephen P. Operational Sustainment: The Impact of Critical Decisions Upon Operational Design. Leavenworth, KS: U.S. Command and General Staff College. School of Advance Military Studies, May 1989.
- Rusin, Jo B. Command and Control of Replacement Personnel. Leavenworth, KS: U.S. Army Command and General Staff College, May 1982.
- Stogdill, Ralph M. Individual Behavior and Group Achievement. New York: The Oxford University Press, 1959.
- Strauss, Thomas J. The United States Army's Regimental System - A Framework for Wartime Personnel Replacement. Leavenworth, KS: U.S. Army Command and General Staff College. May 1984.
- Wehner, Randolph B. Sustainment Improvisation - Expanding the Realm of the Possible. Leavenworth, KS: U.S. Command and General Staff College. School of Advance Military Studies, May 1986.
- U.S. Army. FM 12-6. Personnel Doctrine. Washington, D.C.: HQ, Dept. of the Army, August 1989.
- _____. FM 100-5. Operations. Washington, D.C.: HQ, Dept. of the Army, May 1986.

- _____. FM 100-6. Large Unit Operations. Washington, D.C.: HQ, Dept. of the Army, September 1987.
- _____. FM 100-16. Support Operations: Echelons Above Corps. Washington, D.C.: HQ, Dept. of the Army, April 1985.
- _____. FM 701-58. Planning Logistics Support for Military Operations. Washington, D.C.: HQ, Dept. of the Army, May 1987.
- _____. TRADOC Pam 11-9. Army Programs: Blueprint of the Battlefield. Ft. Monroe, VA: HQ U.S. Army Training and Doctrine Command, July 1988.
- _____. TRADOC Pam 525-25. Military Operations: U.S. Army Operational Concept for Wartime Personnel Replacement Operations. Fort Monroe, VA: HQ, U.S. Army Training and Doctrine Command, February 1983.
- U.S. Army War College. Campaign Planning. Carlisle Barracks, PA: Strategic Studies Institute, January 1988.
- U.S. Department of the Army. After Action Report. Mobilization of Reserve Forces 1968. Washington, D.C.: HQ, Dept. of the Army, no date.
- _____. Army Mobilization and Operations Planning System (AMOPS), Vol. I, System Description, Responsibilities and Procedures. Washington, D.C.: HQ, Dept. of the Army, Office of the Deputy Chief of Staff for Operations and Plans, June 1988.
- _____. Training and Organization of the U.S. Army Reserve Components. Fort Monroe, VA: U.S. Army Training Board, April 1988.

Interviews and Lectures:

- Holden Reid, Dr. Brian. Lecture on J.F.C. Fuller. Ft. Leavenworth, KS: School of Advanced Military Studies, 6 February 1990.
- Lomans, LTC. Center for Army Tactics. Interview with author. Ft. Leavenworth, KS: 26 January 1990.
- McCaffrey, LTG (ret) William J. Lecture on the Korean War. Ft. Leavenworth, KS: School of Advanced Military Studies, 6 February 1990.
- Spencer, MAJ Tracey. Department of Sustaining and Resourcing Operations. Interview with author. Ft. Leavenworth, KS: U.S. Army Command and General Staff College, 26 January 1990.